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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/596,009	06/16/2000	Brig Barnum Elliott	00-4010	2514

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EXAMINER

MOORTHY, ARAVIND K

ART UNIT	PAPER NUMBER
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2131

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/596,009

Applicant(s)

ELLIOTT, BRIG BARNUM

Examiner

Aravind K. Moorthy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-26 and 32 is/are allowed.
- 6) ☒ Claim(s) 27-31 and 33-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This is in response to the amendment filed on 6 April 2005.
2. Claims 1-36 are pending in the application.
3. Claims 1-26 and 32 have been allowed.
4. Claims 27-31 and 33-36 have been rejected.

Claim Objections

5. Claim 27 is objected to because of the following informalities: typographical error. There is no space between the words "identified" and "router". The applicant needs to put a space between the words to overcome the objection. Appropriate correction is required.

Response to Arguments

6. Applicant's arguments, see pages 15-19, filed 6 April 2005, with respect to claims 1-32 have been fully considered and are persuasive. The rejection of the claims has been withdrawn.
7. Applicant's arguments with respect to claims 33-36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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8. Claims 27-31 and 33-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Hardjono U.S. Patent No. 6,425,004 B1.

As to claim 27, Hardjono discloses in a communications system for communications among a plurality of routers controlled by a set of trusted parties in a network having verifiable information identifying at least one functioning router which has become controlled by an untrusted party, a method of operating the network comprising the steps of:

excising the identified router from the network [column 8 line 66 to column 9 line 17]; and

determining whether messages transmitted between the plurality of routers are from the identified router [column 8 line 66 to column 9 line 17].

As to claim 28, Hardjono discloses the step of reinstating the identified router when a trusted party regains control of the router [column 8 line 66 to column 9 line 17].

As to claim 29, Hardjono discloses that the plurality of routers are prevented from communicating with the identified router [column 5 line 40 to column 6 line 18].

As to claims 30 and 31, Hardjono discloses that the determining step comprises consulting a data structure representing excised routers to determine if the router is controlled by an untrusted party [column 5 line 40 to column 6 line 18].

As to claims 33 and 34, Hardjono discloses in a communications system for communications among a plurality of routers controlled by one or more trusted parties in a network, each of the routers maintaining information regarding functioning routers in the network that have become controlled by untrusted parties, a method of operating a network router comprising the steps of:

receiving a message from one of the plurality of routers in the network [column 5 line 40 to column 6 line 18];

determining a router identifier for the router that just transmitted the message [column 5 line 40 to column 6 line 18];

determining whether the information regarding functioning routers in the network have become controlled by an untrusted party includes the router identifier [column 5 line 40 to column 6 line 18]; and

disregarding the message when the router is listed in the information regarding routers controlled by an untrusted party [column 5 line 40 to column 6 line 18].

As to claim 35, Hardjono discloses a method of excising a router controlled by an untrusted party from an ad-hoc network, the network including a plurality of routers controlled by one or more trusted parties, at least one network control computer communicates with at least one of the plurality of routers, the method comprising the steps of:

determining that a functioning router of the plurality of routers in the network has become controlled by an untrusted party, as discussed above;

excising the router controlled by the untrusted party from the network, as discussed above; and

preventing the plurality of routers from communicating with the router controlled by the untrusted party [column 5 line 40 to column 6 line 18].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hardjono U.S. Patent No. 6,425,004 B1 as applied to claim 35 above, and further in view of Nessett et al U.S. Patent No. 5,968,176.

As to claim 36, Hardjono does not teach determining step comprises determining a router is controlled by an untrusted party through embedded firewall functionality provided in each of the plurality of routers.

Nessett et al teaches routers with firewall functionality provided in each of the plurality of routers [column 7, lines 48-55].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Hardjono so that a compromised router would have been determined through its embedded firewall functionality provided in each of the plurality of routers.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Hardjono by the teaching of Nessett et al because security functions placed in network interface cards, in switches, in routers, and in remote access systems, and provides a system administrator the opportunity to move firewall functionality out to the variety of devices in the networks to create a pervasive, multilayer firewall. Security features can

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be distributed in multiple layers to multiple devices, and managed using a coherent security policy management interface that provides a security administrator convenient and clear control over the security properties of the network. The distributed functionality, and convenient and clear control allow scaling advantages for firewalls that now exist only for systems such as distributed remote monitoring dRMON, or other sophisticated network systems that are directed to single purpose functions [column 6, lines 12-26].

Allowable Subject Matter

10. Claims 1-26 and 32 are allowed.

As to claims 1, 7 and 24, prior art does not teach or fairly disclose evaluating an excising signal received from the network control computer. Prior art does not teach or fairly disclose the excising signal indicating that the network control computer has determined that an untrusted party has gained control of a first functioning router of the plurality of routers and is to be excised from the network. Prior art does not teach or fairly disclose determining an authenticity of the excising signal. Prior art does not teach or fairly disclose excising the first router when the excising signal is authenticated. Prior art does not teach or fairly disclose rerouting the excising signal to at least a second router of the plurality of routers when the excising signal is authenticated.

As to claim 16, prior art does not teach or fairly disclose evaluating an excising signal received from the network control computer. Prior art does not teach or fairly disclose the excising signal indicating that the network control computer has determined that an untrusted party has gained control of a first functioning cluster head or cluster member station and is to be excised from the network. Prior art does not teach or fairly disclose verifying the authenticity of

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the excising signal. Prior art does not teach or fairly disclose excising the first cluster head or cluster member station when the excising signal is authentic. Prior art does not teach or fairly disclose distributing the excising signal to at least a second cluster head or cluster member station.

As to claims 17 and 22, prior art does not teach or fairly disclose formulating in the control computer an excise signal indicating that an untrusted party has gained control of at least a second functioning router to be excised from the network. Prior art does not teach or fairly disclose adding the information identifying the second router to information regarding excised routers stored in memory of the first router. Prior art does not teach or fairly disclose removing from the first router routing updates corresponding to the second router. Prior art does not teach or fairly disclose removing information corresponding to the second router from a neighbor table of the first router when the second router is listed therein. Prior art does not teach or fairly disclose recomputing a forwarding table in the first router. Prior art does not teach or fairly disclose redistributing the excise signal to each of the plurality of routers, except for the second router. Prior art does not teach or fairly disclose upon receiving a message from another one of the plurality of routers, determining, in each of the plurality of routers an identifier for the router from which the message is received and processing the message only when the information regarding excised routers does not include the identifier authentic. Prior art does not teach or fairly disclose providing a digital signature of the control computer on the excise signal and transmitting the excise signal to the first router. Prior art does not teach or fairly disclose verifying the signature on the excise signal in the first router. Prior art does not teach or fairly disclose that the digital signature is validated using a public encryption key.

As to claims 25 and 26, prior art does not teach or fairly disclose authenticating in the first router a cut-off signal received from the control computer. Prior art does not teach or fairly disclose the cut-off signal indicating that the control computer has determined that at least one functioning router is controlled by an untrusted party and is to cut-off from communicating with the network. Prior art does not teach or fairly disclose preventing the first router from communicating with the at least one cut-off router when the signal is authenticated. Prior art does not teach or fairly disclose redistributing the cut-off signal to each of the plurality of routers, except for the at least one cut-off router, and preventing each of the remaining routers from communicating with the at least one cut-off router. Prior art does not teach or fairly disclose that when a router receives a message from one of the plurality of routers, the router determines if the message is from the at least one cut-off router, and processes the message only when the message is not from the at least one cut-off router.

As to claim 32, prior art does not teach or fairly disclose code to reinstate an excised router when a trusted party regains control of the excised router.

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Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aravind K. Moorthy whose telephone number is 571-272-3793. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aravind K Moorthy 
June 23, 2005


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